Efficacy and safety of cryopreserved autologous CD34+ HSC transduced with EFS lentiviral vector encoding for human ADA gene in ADA-SCID subjects

Grant Award Details

Efficacy and safety of cryopreserved autologous CD34+ HSC transduced with EFS lentiviral vector encoding for human ADA gene in ADA-SCID subjects

Grant Type: Clinical Trial Stage Projects

Grant Number: CLIN2-09339

Project Objective: Perform clinical trial and file BLA with OTL-101

Investigator:

Name:	Donald Kohn
Institution:	University of California, Los Angeles
Type:	PI

Disease Focus: Immune Disease, Pediatrics, Genetic Disorder, Adenosine deaminase-deficient Severe Combined Immunodeficiency (ADA-SCID), Blood Disorders

Human Stem Cell Use: Adult Stem Cell

Award Value: $19,065,745

Status: Active

Grant Application Details

Application Title: Efficacy and safety of cryopreserved autologous CD34+ HSC transduced with EFS lentiviral vector encoding for human ADA gene in ADA-SCID subjects

Public Abstract:

Therapeutic Candidate or Device

Autologous CD34+ hematopoietic stem cells (HSCs) transduced with a lentiviral vector encoding the human ADA gene (or "OTL-101")

Indication

Adenosine Deaminase - Severe Combined Immunodeficiency (or ADA-SCID)

Therapeutic Mechanism

This project will lead to a License Application for OTL-101 as a treatment for ADA-SCID. The patient's own stem cells ("autologous") are genetically corrected ex-vivo utilizing a lentiviral vector encoding the human ADA gene. Once frozen, the genetically-corrected cells are shipped to the transplant site, thawed and infused into the patient in order to reconstitute their immune system. FDA has granted OTL-101 Orphan Drug designation (2014) and Breakthrough Therapy designation (2015).

Unmet Medical Need

In ADA-SCID, allogeneic HSCTs from non-HLA matched sibling donors are a high-risk procedure (29-67% survival; source: Hassan, 2012), and the efficacy of chronic ERT is uncertain in the long-term. Preliminary data indicates that OTL-101 may significantly improve outcomes vs. available therapies

Project Objective

Perform clinical trial and file BLA with OTL-101

Major Proposed Activities

- Perform GMP manufacture of 10 patient-specific lots of EFS-ADA LV CD34+ HSPC (OTL-101) and transplant 10 subjects with ADA-SCID
- Submit BLA to FDA for OLT-101
- Complete the 2-year follow-up in patients treated with OTL-101.

Statement of Benefit to California:

Severe Combined Immune Deficiency (SCID), a potentially fatal immune disorder, is now diagnosed by newborn screening in California. Successful treatment of SCID using the patient's own blood forming stem cells corrected with gene therapy has the potential to permanently cure this disease more safely and effectively than with a transplant from another person. This approach could also provide safe, effective and cost-effective treatments for many other serious, life-threatening conditions.

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